

Application No.: 09/991,142

Docket No.: 21806-00134-US

REMARKS

Claims 13-14 are allowed. Claims 1-10, 12 and 20-22 are rejected. Claims 16, 17, 18 and 19 are withdrawn.

Withdrawal of the rejection of claims 1, 2, 7-9, 12 and 21 under 35 U.S.C. § 102 as being anticipated by Yagi et al. (U.S. Pat. No. 4,038,680), is requested. The Yagi et al. reference is characterized in the Final Rejection as including a second subcollector 88.

This characterization is in error. Item 88 in Yagi et al. is a collector, which is distinctly different from a buried subcollector as claimed in the present application. Claim 1 requires that there be two subcollectors, one in each semiconductor device, that differ from each other. Further, the subcollectors of claims 1 and 21 are doped to provide for lateral ballasting of the second subcollector, which provides ESD protection.

In reviewing the cited reference, no description of any ballasting for providing for improved ESD protection is disclosed. The reference appears only to be directed to improving the withstanding voltage, and high frequency amplification characteristics. A withstanding voltage is determined in the cited reference by the punch-through voltage, which is increased for the device disclosed in the reference.

The lateral ballasting to avoid the consequences of an ESD event is not disclosed or suggested to be an improvement of the '680 patented device. Further, this functional result of having a second subcollector with the aforesaid doping provides for lateral ballasting is not disclosed in the reference.

The notation that the limitation "provide lateral ballasting effect" is "a recitation with respect to the manner in which a claimed apparatus is intended to be employed" is an inaccurate characterization of the limitation. Functional limitations are appropriate when they qualify and/or limit the structure and must be given effect.

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Withdrawal of the rejection of claims 1, 2, 6, 9, 12 and 21 under 35 U.S.C. § 102 as being anticipated by Watanabe et al. (U.S. Pat. No. 4,258,379) is requested. The Watanabe et al. patent describes a combination NPN transistor and IIL device on a common substrate. The NPN transistor is designed to have a higher breakdown voltage than the IIL device. This reference as well fails to disclose any features which would provide lateral ballasting of the second subcollector for providing ESD protection.

Claim 6 additionally includes limitations not found in the reference. For instance, the first subcollector has a sheet resistance below approximately 20 ohms per sq. cm. and the second subcollector has a sheet resistance above 50 ohms per sq. cm.

Claim 21 additionally requires the first device to be a bipolar transistor having a subcollector doping to enhance the transistor performance, and the second semiconductor device has a doping selected to enhance its ESD performance. Improved ESD performance is not a disclosed feature of the '379 patent, and, accordingly, the patent cannot anticipate this feature.

Withdrawal of the rejection of claims 3-5 under 35 U.S.C. § 103 as being unpatentable over Watanabe et al. '379 patent, further in view of Yamaguchi (JP 63-288055) is requested. The rationale in the Final Rejection suggesting that even though Watanabe et al. does not disclose the first collector implant dosage, and second collector implant dosage, that the dosage would be obvious to one skilled in the art is an inappropriate application of the discredited "obvious to try standard."

Withdrawal of the rejection of claim 10 under 35 U.S.C. § 103 as being unpatentable over Watanabe et al. '379 patent, further in view of Hebert et al. (U.S. Pat. No. 6,365,447) is requested. Claim 10 is dependent on claim 1, and is therefore deemed to be allowable.

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Withdrawal of the rejection of claims 20 and 22 under 35 U.S.C. § 103 as being unpatentable over Watanabe et al. '379 patent, further in view of Wahio et al. (U.S. Pat. No. 4,694,321) is requested. Claims 20 and 21 are directed to the feature which provides for ESD robustness of the second semiconductor device. This is achieved in accordance with these claims by having different doping concentrations in the second semiconductor device.

In reviewing the references, it is not seen where either reference described improved ESD performance by the selective relative doping of the first and second subcollectors. Accordingly, it is not seen how the combination of references can disclose or suggest this feature.

In view of the foregoing, favorable reconsideration is requested.

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Respectfully submitted,



George R. Pettit, Reg. No. 27,369
CONNOLLY BOVE LODGE & HUTZ LLP
1990 M Street, N.W., Suite 800
Washington, DC 20036-3425
(202) 331-7111
(202) 293-6229 (Fax)
Attorney for Applicant